NEWSLETTER

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HORTICULTURE AT THE XI INTERNATIONAL BOTANICAL CONGRESS

Robert B. Gordon

International Botanical Congresses have long been major events for plant scientists and many who are engaged in the profession of horticulture throughout the world. Scheduled every five years, when possible, the two previous Congresses were held at Montreal in 1959 and at Edinburgh in 1964. It was with much satisfaction to Mrs. Gordon and myself that our planning since last November made the program of the XI I.B.C. a reality for us and a professional highlight of 1969. It included a Pre-Congress scientific field trip with taxonomists and plant geographers from several nations and various parts of the U.S.A. Our 7-day bus tour was most efficiently organized by John H. Thomas of the Division of Systematic Biology at Stanford University and the Dudley Herbarium. Well-known participants in the tour were George H. M. Lawrence, Director of The Hunt Library at Pittsburgh, Kenneth R. Sporne of the Botany School at the University of Cambridge, F. Raymond Fosberg, of the U.S. National Museum, Smithsonian Institution at Washington, William T. Stearn, of the British Museum of Natural History at London, and Pieter von Royen, of the Bishop Museum at Honolulu. Among points of special botanical or geological interest were Muir Woods (Fig. 1) near San Francisco, Yosemite National Park (Fig. 2), Mt. Lassen, the Shasta-Trinity National Forest (Fig. 3), Crater Lake and Mount Hood in Oregon, and Mount Rainier. The weather could not have been better, but it seemed excessively hot by day when we traveled through the Central Valley of California, the Valley floor of Yosemite, and the western fringe of the "Great Oregon Desert" in the rain shadow of the Cascade Range.

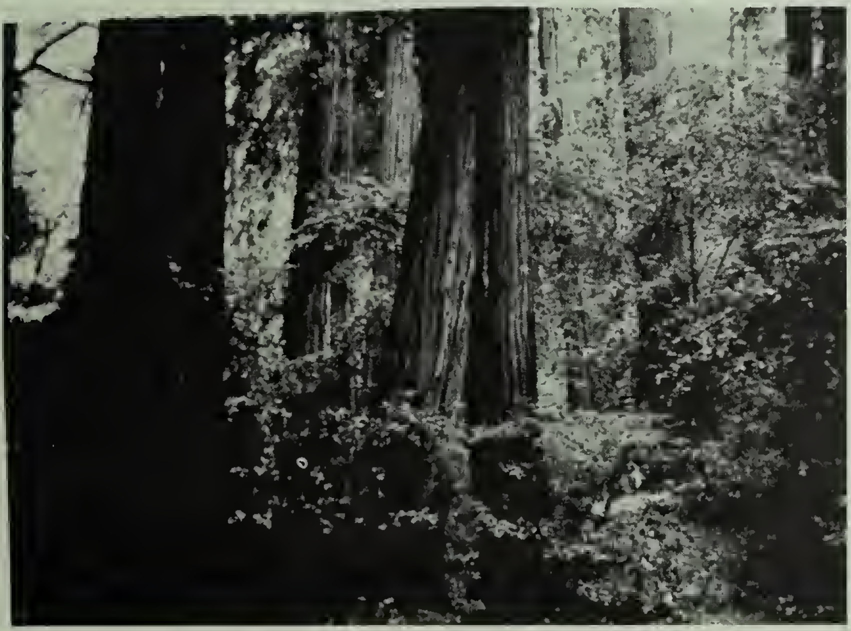


Fig. 1. *Sequoia sempervirens* in Muir Woods

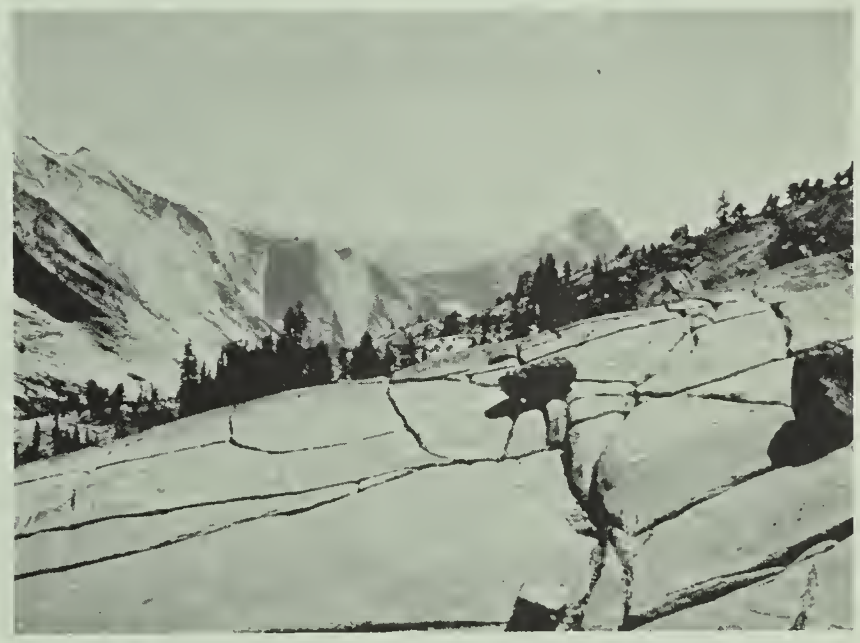


Fig. 2. Granitic rocks in Yosemite National Park

Of nearly 1600 papers presented in symposia and meetings, many could conceivably be listed as significant to horticulture. But we should have to include those dealing with genetics of higher plants and the role of plant chemicals in attracting insect pests or favorable to injection by plant pathogens. A session on the Physiology of Flowering, on August 29th, conflicted with another the same afternoon on Population Genetics and Plant Breeding. Other sessions dealt with farm crops, timber, food and drug

Fig. 3. Mt. Shasta, from McCloud, California

plants. Hundreds of persons visited the remarkable garden of drug plants during the Congress (August 25 to Sept. 2). Design was formal and mostly pleasing in that plantings were generally arranged with due regard to growth habits, colors *en masse*, and interesting vistas. (Fig. 4).

A special symposium on the Origin of Cultivated Plants was supported in part by the Longwood Foundation on the 26th. A session on Culture and Initiation of Plant Organs was obviously slanted toward techniques in plant propagation. So were two sessions on Regulation of Growth and Development of Hormones with 25 papers listed. Another on Control of Plant Growth and Metabolism by Applied Chemicals was supported by the Geigy Chemical Corporation; the four papers dealt with control of dormancy, control of growth, control of senescence, and control of fruit ripening. We can expect more applications of such methods to horticulture in the future.

Best of all the experiences planned to delight the amateur gardener and the professional horticulturist were the frequent field trips. Buses were busily engaged in transporting Congress participants to and from the University of Washington Arboretum, maintained as a city park. It "comprises more than 200 acres of systematic plantings of exotic trees and shrubs in a setting of native lowland forest and lakeshore swamp habitat." Suitable conservatories, lath houses and propagating beds provided for considerable trials of new materials for decorative gardening and for replacement or embellishment of existing plantings. A special feature was an authentic Japanese Garden of considerable size, designed by a noted Japanese architect. A full-sized traditional Japanese dwelling was included, a gift of the citizens of Kyoto to the people of Seattle. Every element of design to be expected in such a stylized garden was there in symbolic beauty and simple elegance. (Figs. 5 and 6).

For 55 years the U.S. Army Corps of Engineers, Seattle District, has maintained the Hiram M. Chittenden Locks, designed to separate the fresh waters of Lake Washington and Seattle's harbor from the salt waters of Puget Sound. Colonel Richard E. McConnell, District Engineer, arranged to transport by "snagboat" all registrants who wished to visit the grounds adjacent to the Locks. Here was a most surprising collection of woody plants and other perennials of curious interest and ornamental value, begun in 1915 before the Locks became operable. In 1931 Carl S. English, Jr., joined the staff as a University-trained horticulturist. He was our guide on the 25th. It was one of many beautiful days with blue skies, fleecy white clouds and mild temperatures. Fortunately these weather conditions prevailed during the entire period of the Congress. Mr. English used an electronic "bullhorn" to inform our group, first of many who were to take advantage of the special arrangements. To our surprise a commercial motion picture producer and an assistant were filming the group from various angles and at frequent stops. We learned that selected footage would appear in a documentary film of the work of the U.S. Army engineers in the Seattle District. Our leader had much to say, with enthusiasm for each planting, and the ninety minutes at our disposal for observations passed like a whirlwind. Notable plants in the collection were *Embothrium coccineum* and *Eucryphia glutinosa*, native to Chile, and two species of *Stewartia* from Japan, rarely seen in U.S. gardens. Also highly regarded as ornamental trees in the Puget Sound region are three species native to the eastern U.S.: *Liquidambar Styraciflua, Oxydendrum arboreum* and *Quercus coccinea.* A final treat for the visitors was a performing Venus' Flytrap (*Dionaea muscipula*) maintained in full vigor in a warm sunny place. That it was grown in a No. 10 tin can full of wet acid peat detracted not in the least from the show.

We were delighted to receive an attractive brochure prepared as an informative souvenir of the tour; indeed it is a model for any visitors' guide book of this sort. We learned from Mrs. English that they had entertained the late Dr. Francis W. Pennell and our own Dr. Edgar T. Wherry on their expedition to the Pacific States in the '30s to examine and collect specimens of the Scrophulariaceae and Polemoniales, subjects for later monographs.

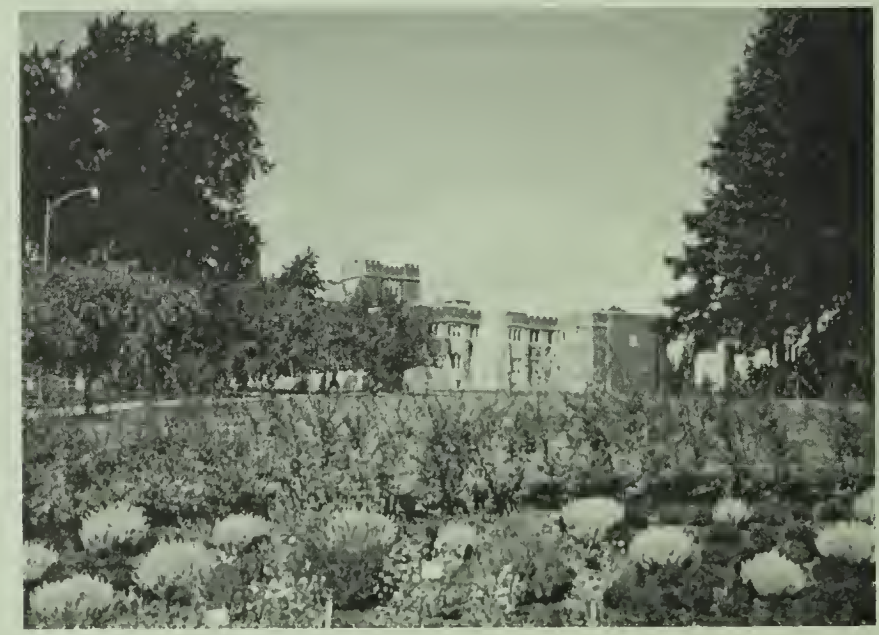


Fig. 4. Drug Plant Garden of the University of Washington

Fig. 5. Japanese Garden in
University of Washington Arboretum.

On Monday evening, August 26, the Mayor's Reception in the Seattle Exhibition Center brought us another unusual horticultural show. In one large hall were specimens of 335 different kinds of Ericaceous plants that could be grown in the vicinity of Seattle, displayed alive in containers with appropriate labels. Every visitor was provided with a brochure containing a 14-page list with compliments of The Friends of the University of Washington Arboretum, Inc. In the display were 18 species or named cultivars of *Arctostaphylos*, 44 of *Erica*, 21 of *Gaultheria*, more than a hundred of *Rhododendron*, and 33 of *Vaccinium*. The cover of the brochure was decorated with a drawing of *Daboecia azorica.*

Worthy of comment were the bus tours of private gardens in Seattle on the morning of August 27. Nobody could know when he boarded a bus just what gardens he would visit. Each bus driver was handed a sealed envelope telling him what place would he his destination and who would meet the bus when it arrived. Mrs. Gordon and I were supremely fortunate to be on a tour of four gardens on a private drive in The Highlands, overlooking Puget Sound. Again time became the limiting factor, but we were told later that one of the gardens we visited was really outstanding of all private gardens in the area. The Pendleton Miller's showed a skillful blending of artificial and native landscapes, using much of choice native material where microclimatic conditions were likely to be favorable to a particular species. Mrs. Miller informed us that she uses plenty of humus, shredded bark, wood chips, and rotted sawdust mostly, no commercial fertilizers, no insecticides nor any other chemical sprays in her wild garden areas. We could not help but compare her skills with that of the late Dr. Laura L. Barnes, former Director of the Arboretum here, at Merion, Pennsylvania.

Changes in the International Code of Nomenclature and new proposals to change plant names were first on the agenda of the Congress, meeting in Seattle, Washington, August 21-24, for a few days before the opening plenary session on Sunday. All serious-minded officials of arboreta, botanical gardens, conservatories, and herbaria are likely to be concerned when such proposals are considered every five years by an international group of plant taxonomists. On the other hand, efforts to conserve long-established generic names are equally significant. Previous to the meeting a bulletin of 124 pages was sent to members of the International Bureau for Plant Taxonomy and Nomenclature for study and action. Edward G. Voss of the University of Michigan Herbarium and Vice-Rapporteur for Botanical Nomenclature had also prepared a questionnaire for a mail vote concerning recommended changes. Much time was doubtless saved for the participants, who generally accepted by an overwhelming majority of OUI or YES votes. Changes in some fifty articles of the International Code, eighteen Recommendations, old and new, were acted upon, as well as nearly thirty proposals of specific character; some that involved rewording, or coordination with other articles in the Code, were referred to special committees. C. V. Martin of the Smithsonian Institution was chairman of a special committee to deal with superfluous names, mostly at the specific level in the case of vascular plants. One example was that of *Cedrus* Duhamel, for which *Juniperus* Linn. was cited as a synonym though "only some of the species of *Juniperus* L. were included" in a 1755 publication. Reed. C. Rollins of Harvard University and F. A. Stafleu of the Botanical Museum at Utrecht in the Netherlands were the President and the Rapporteur-General respectively of the Bureau for Plant Taxonomy and Nomenclature.*

**new address* of the I.B.P.T. & N. *after* 1 *October*, 1969: TWEEDE TRANSITORIUM, UITHOF, UTRECHT, NETHERLANDS.

Fig. 6. Japanese Garden in
University of Washington Arboretum.

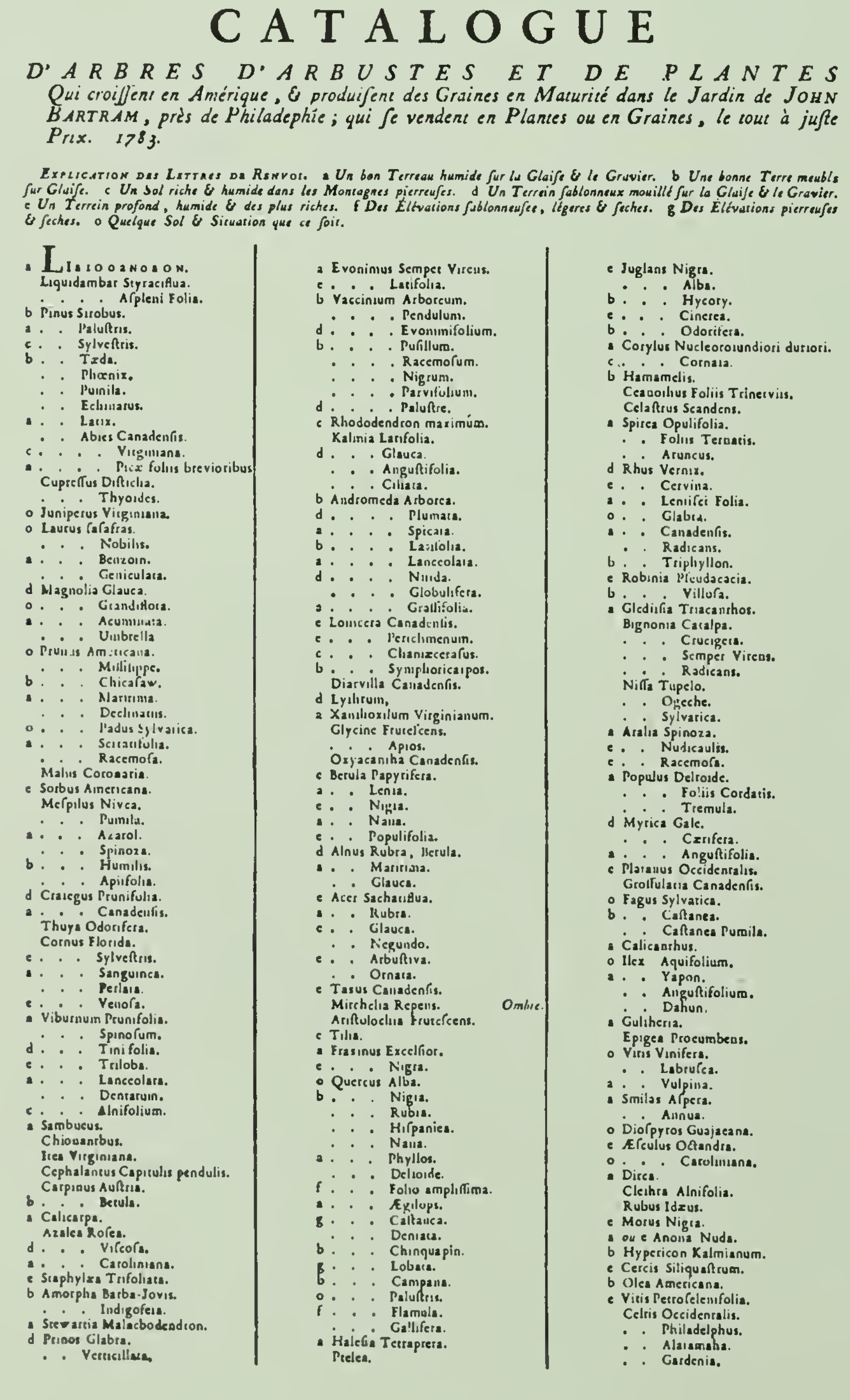
BARTRAM'S GARDEN CATALOGUE - 1783

Elizabeth Colt Walker

In the course of researching 18th Century horticulture in Pennsylvania I came across an interesting list of plant material in the Manuscript Department of The American Philosophical Society: "Catalogue D'Arbres D'Arbustes et De Plantes Qui Croissent en Amérique, & Produisent de Graines en Maturité dans le Jardin de JOHN BARTRAM, près de Philadelphia; qui se vendent en Plantes ou en Graines, le tout à juste Prix. 1783." Below this heading is a key to the type of soil in which each species should be planted; a letter before each plant name corresponds with the key.

The list is interesting because it reveals what was then being propagated by the Bartrams: John, Jr. and William, who lived on at the farm with his brother, after their father's death in 1777. It is also of interest as it indicates that quite a number of plants had been introduced some years earlier than has been thought.

Alfred Rehder's "Manual of Cultivated Trees and Shrubs" is one of the authoritative books, and probably the one most widely used, for woody material which can be grown in North America excluding the warmer regions. In this book Rehder has indicated the dates at which various species were introduced into cultivation, but has depended primarily on a list published in Europe. From Bartram's "Catalogue" it would appear that his European source might not have been entirely accurate.



CATALOGUE

D'ARBRES D'ARBUSTES ET DE PLANTES
Qui croiſſent en Amérique, & produiſent des Graines en Maturité dans le Jardin de JOHN BARTRAM, *près de Philadephie; qui ſe vendent en Plantes ou en Graines, le tout à juſte Prix. 1783.*

Explication des Lettres de Renvoi. a *Un bon Terreau humide ſur la Glaiſe & le Gravier.* b *Une bonne Terre meuble ſur Glaiſe.* c *Un Sol riche & humide dans les Montagnes pierreuſes.* d *Un Terrein ſablonneux mouillé ſur la Glaiſe & le Gravier.* e *Un Terrein profond, humide & des plus riches.* f *Des Élévations ſablonneuſee, légeres & ſeches.* g *Des Élévations pierreuſes & ſeches.* o *Quelque Sol & Situation que ce ſoit.*

a LIRIODENDRON.
Liquidambar Styraciflua.
. . . . . Aſpleni Folia.
b Pinus Strobus.
a . . Paluſtris.
c . . Sylveſtris.
b . . Tæda.
. . Phœnix.
. . Pumila.
. . Echinatus.
a . . Larix.
. . Abies Canadenſis.
c . . . . Virginiana.
a . . . . Picæ foliis brevioribus
Cupreſſus Diſticha.
. . . Thyoides.
o Juniperus Virginiana.
o Laurus ſaſafras.
. . . Nobilis.
a . . . Benzoin.
. . . Geniculata.
d Magnolia Glauca.
o . . . Grandiflora.
a . . . Acuminata.
. . . Umbrella
o Prunus Americana.
. . . Millippe.
b . . . Chicaſaw.
a . . . Maritima.
. . . Declinatus.
o . . . Padus Sylvatica.
a . . . Serratifolia.
. . . Racemoſa.
Malus Coronaria.
e Sorbus Americana.
Meſpilus Nivea.
. . . Pumila.
a . . . Azarol.
. . . Spinoza.
b . . . Humilis.
. . . Apiifolia.
d Cratægus Prunifolia.
a . . . Canadenſis.
Thuya Odorifera.
Cornus Florida.
e . . . Sylveſtris.
a . . . Sanguinea.
. . . Perlata.
e . . . Venoſa.
a Viburnum Prunifolia.
. . . Spinoſum.
d . . . Tini folia.
e . . . Triloba.
a . . . Lanceolata.
. . . Dentatum.
c . . . Alnifolium.
a Sambucus.
Chionanthus.
Itea Virginiana.
Cephalantus Capitulis pendulis.
Carpinus Auſtria.
b . . . Betula.
a Calicarpa.
Azalea Roſea.
d . . . Viſcoſa.
a . . . Caroliniana.
e Staphylæa Trifoliata.
b Amorpha Barba-Jovis.
. . . Indigofera.
a Stewartia Malacbodendron.
d Prinos Glabra.
. . Verticillata.

a Evonimus Semper Virens.
e . . . Latifolia.
b Vaccinium Arboreum.
. . . . Pendulum.
d . . . . Evonimifolium.
b . . . . Puſillum.
. . . . Racemoſum.
. . . . Nigrum.
. . . . Parvifolium.
d . . . . Paluſtre.
c Rhododendron maximúm.
Kalmia Latifolia.
d . . . Glauca.
. . . Anguſtifolia.
. . . Ciliata.
b Andromeda Arborea.
d . . . . Plumata.
a . . . . Spicata.
b . . . . Latifolia.
a . . . . Lanceolata.
d . . . . Nitida.
. . . . Globulifera.
a . . . . Graſſifolia.
e Lonicera Canadenſis.
e . . . Periclimenum.
c . . . Chamæceraſus.
b . . . Symphoricarpos.
Diarvilla Canadenſis.
d Lythrum,
a Xanthoxilum Virginianum.
Glycine Fruteſcens.
. . . Apios.
Oxyacantha Canadenſis.
e Betula Papyrifera.
a . . Lenta.
e . . Nigra.
a . . Nana.
e . . Populifolia.
d Alnus Rubra, Betula.
a . . Maritima.
. . Glauca.
e Acer Sachariflua.
a . . Rubra.
c . . Glauca.
. . Negundo.
e . . Arbuſtiva.
. . Ornata.
e Taxus Canadenſis.
Mitchelia Repens. *Ombre.*
Ariſtolochia Fruteſcens.
c Tilia.
a Fraxinus Excelſior.
e . . . Nigra.
o Quercus Alba.
b . . . Nigra.
. . . Rubra.
. . . Hiſpanica.
. . . Nana.
a . . . Phyllos.
. . . Deltoide.
f . . . Folio ampliſſima.
a . . . Ægilops.
g . . . Caſtanea.
. . . Dentata.
b . . . Chinquapin.
g . . . Lobata.
b . . . Campana.
o . . . Paluſtris.
f . . . Flamula.
. . . Gallifera.
a Haleſia Tetraptera.
Ptelea.

e Juglans Nigra.
. . . Alba.
b . . . Hycory.
e . . . Cinerea.
b . . . Odorifera.
a Corylus Nucleorotundiori duriori.
c . . . Cornata.
b Hamamelis.
Ceanothus Foliis Trinerviis.
Celaſtrus Scandens.
a Spirea Opulifolia.
. . Foliis Ternatis.
. . Aruncus.
d Rhus Vernix.
e . . Cervina.
a . . Lentiſci Folia.
o . . Glabra.
a . . Canadenſis.
. . Radicans.
b . . Triphyllon.
e Robinia Pſeudacacia.
b . . . Villoſa.
a Gleditſia Triacanthos.
Bignonia Catalpa.
. . . Crucigera.
. . . Semper Virens.
. . . Radicans.
Niſſa Tupelo.
. . Ogeche.
. . Sylvatica.
a Aralia Spinoza.
e . . Nudicaulis.
c . . Racemoſa.
a Populus Deltoide.
. . . Foliis Cordatis.
. . . Tremula.
d Myrica Gale.
. . . Cærifera.
a . . . Anguſtifolia.
c Platanus Occidentalis.
Groſſularia Canadenſis.
o Fagus Sylvatica.
b . . Caſtanea.
. . Caſtanea Pumila.
a Calicanthus.
o Ilex Aquifolium.
a . . Yapon.
. . Anguſtifolium.
. . Dahun.
a Gultheria.
Epigea Procumbens.
o Vitis Vinifera.
. . Labruſca.
a . . Vulpina.
a Smilax Aſpera.
. . Annua.
o Dioſpyros Guajacana.
e Æſculus Octandra.
o . . . Caroliniana.
a Dirca.
Clethra Alnifolia.
Rubus Idæus.
e Morus Nigra.
a *ou* e Anona Nuda.
b Hypericon Kalmianum.
e Cercis Siliquaſtrum.
b Olea Americana.
e Vitis Petroſelenifolia.
Celtis Occidentalis.
. . Philadelphus.
. . Alatamaha.
. . Gardenia.

Present-day nomenclature is quite different in many instances from that of the Bartrams' day, (in some instances there is probably room for doubt in my "translation" of old names to modern). I believe, however, that with the help of William Darlington's "Flora Cestrica" published in 1832 and various editions of Philip Miller's "Dictionary," particularly the 7th Edition published in 1752, checked against Rehder's "Manual" plus reference to Darlington's "Memorials of Bartram and Marshall," the list below is a quite accurate account, in modern terms, of what could have been obtained from the Bartrams in 1783.

Classification, too, has been revised. For example *Mespilus* once included several genera, as did *Andromeda, Juglans*, etc. My own interpretation is certainly open to correction. In the list that follows the name given in the "Catalogue" is first, then follows the name of the plant as we would know it today. In brackets is the date listed by Rehder if it is later than or the same as the date of the "Catalogue." In dubious cases, comments explain my reasoning. Some species seem to defy identification. Someone more competent than I can perhaps determine what was meant by "Laurus Geniculata," "Acer Arbustiva," etc.

The "CATALOGUE":

Liriodendron (Tulip Tree): *L. Tulipifera.*
Liquidambar Styraciflua (Liquidambar): *L. Styraciflua*
L. Aspleni Folia: *Myrica asplenifolia*
Pinus Strobus (White Pine): *P. Strobus*
P. Palustris (Long Leaf Pine): *P. palustris*
P. Sylvestris (Scot's Pine): *P. sylvestris*
P. Taeda (Loblolly Pine): *P. Taeda*
P. Phoenix: Inasmuch as the Bartrams and others were fascinated by the resurgent quality of the Jersey or Pitch Pine *(P. rigida)* after a fire, I am included to believe this is what is meant by Pinus Phoenix although I have found nothing really to prove this point.
P. Pumila: *P. pumila* [1817]
P. Echinatus (Short Leaf Pine): *P. echinata*
P. Larix (Larch, Tamarack): *Larix laricina*
P. Abies Canadensis (Northern Hemlock): *Tsuga canadensis*
P. Abies Virginiana (Southern Hemlock): *Tsuga caroliniana* [1881]
P. Picea foliis brevioribus (Black Spruce): *Picea mariana (brevifolia)*
Cupressus Disticha (Bald Cypress): *Taxodium distichum*
C. Thyoides (White Cedar): *Chamaecyparis thyoides*
Juniperus Virginiana (Red Cedar): *J. virginiana*

Laurus Sasafras (Sassafras): *Sassafras albidum*

L. Nobilis (Sweet Bay): *L. nobilis*

L. Benzoin (Spice Bush): *Lindera Benzoin*

L. Geniculata: – ?

Magnolia Glauca (Swamp Bay): *M. virginiana*

M. Grandiflora (Southern Magnolia): *M. grandiflora*

M. Acuminata (Cucumber Magnolia): *M. acuminata*

M. Umbrella (Umbrella Magnolia): *M. tripetala*

Prunus Americana (Wild Plum): *P. americana*

P. Missisippi: – ?

P. Chicasaw (Chickasaw Plum): *P. angustifolia* [1874]

P. Maritima (Beach Plum): *P. maritima* [1818] (As Bartram and Collinson discussed this plant in their correspondence this date seems controversial).

P. Declinatus: (This is a puzzler. Could it be the pendulous form of *P. serotina*?)

P. Padus Sylvatica (European Bird Cherry): *P. Padus*

P. Serratifolia (Black Cherry): *P. serotina*

P. Racemosa (Choke Cherry): *P. virginiana*, probably, as this seems to be the only other native one with an inflorescence in racemes.

Malus Coronaria (Apple): *M. coronaria*

Sorbus Americana (American Mt. Ash): *S. americana* [1811]

Mespilus–Here we hit confusion. The early botanists grouped several related species under this name and were evidently confused between *Mespilus, Aronia, Amelanchier* and *Crataegus*. However, comparative descriptions would seem to sort out Bartram's list of *Mespilus* as follows:

Mespilus Nivea (Snowy Medlar–Shad Bush): *Amelanchier oblongifolia*

M. Pumila (Red Chokeberry): *Aronia arbutifolia*

M. Azarol (Hawthorn): *Crataegus Azarolus*

M. Spinoza: *Crataegus intricata*

M. Humilis: *Amelanchier humilis* [1904]

M. Apiifolia: *Crataegus Marshallii* [1812]

Crategus Prunifolia (Hawthorn): *Crataegus prunifolia* [1797]

C. Canadensis (Service Berry): *Amelanchier intermedia* [1834]

Thuya Odorifera (Arbor Vitae): *Thuja occidentalis*

Cornus Florida (Flowering Dogwood): *C. florida*

C. Sylvestris: – ?

C. Sanguinea (Silky Cornus): *C. Amomum*

C. Perlata: – ?

C. Venosa: *C. rugosa* would seem to be the only possibility for this, as it is the most prominently veined.

Viburnum Prunifolia (Southern Blackhaw): *V. rufidulum* [1883]

V. Spinosum (Blackhaw, Sloe): *V. prunifolium*. This seems to fit Miller's description more than the above.

V. Tini folia (Sheepberry, Wayfaring Tree): *V. Lentago*, the American version of *V. Lantana* which is the European Wayfaring Tree. Various editions of Miller's "Dictionary" led to this surmise.

V. Triloba (High-bush Cranberry): *V. trilobum* [1812]

V. Lanceolata (Smooth Withe-rod): *V. nudum angustifolium*, according to Miller's description

V. Dentatum (Arrowwood): *V. dentatum*

V. Alnifolium (Hobblebush): *V. alnifolium* [1820]

Sambucus (American Elder): *S. canadensis*

Chionanthus (Fringe Tree): *C. virginicus*

Itea Virginiana: *I. virginiana*

Cephalantus Capitulis Pendulis (Button Bush): *Cephalanthus occidentalis*

Carpinus Austria (Hop Horn Beam, Ironwood): *Ostrya virginiana*. Inasmuch as this was once known as *Carpinus Ostrya* I can only think Bartram was spelling phonetically and came up with "Austria"

Carpinus Betula (American Hornbeam, Water Beech): This according to Marshall was *C. Betula Virginiana* which fits the description of *C. caroliniana*.

Calicarpa (Beauty Berry): *Callicarpa americana*

Azalea Rosea: *Rhododendron roseum* [1790]

Azalea Viscosa: *Rhododendron viscosum*

Azalea Caroliniana: *Rhododendron carolinianum* [1815]

Staphylaea Trifoliata (Bladder Nut): *S. trifolia*

Amorpha Barba-Jovis (Kidney vetch): *Anthyllis vulneria*

Amorpha Indigofera (Bastard Indigo): *Amorpha fruticosa*

Stewartia Malachodendron: *S. Malacodendron*

Prinos Glabra (Inkberry): *Ilex glabra*

Prinos Verticillata (Black Alder): *Ilex verticillata*

Evonimus Semper Virens (Burning Bush): *Euonymus americana*

E. Latifolia: *E. latifolia*

Vaccinium Arboreum (Farkleberry): *V. arboreum*

V. Pendulum: This and the next seem impossible to identify

V. Evonimifolium

V. Pusillum (Hairy Huckleberry): *V. hirsutum* seems the most likely candidate for this. [1887]

V. Racemosum (Deerberry): As *V. stamineum* is our only *Vaccinium* bearing its inflorescence in racemes this would seem to be the one meant.

V. Nigrum: (Black Huckleberry) *Gaylussacia baccata*

V. Parvifolium: ?

V. Palustre (Swamp Blueberry): *V. corymbosum*

Rhododendron Maximum: *R. maximum*

Kalmia Latifolia (Mountain Laurel): *K. latifolia*

K. Glauca: *K. polifolia*

K. Angustifolia (Sheep Laurel): *K. angustifolia*

K. Ciliata: *K. hirsuta* [1790]

Andromeda is another confusing group comprising the true *Andromeda, Cassiope, Zenobia, Pieris, Lyonia, Chamaedaphne, Oxydendrum* and *Leucothoe*. I was unable to find descriptions clear enough, or at all in some cases, even to hazard a guess for some of these:

Andromeda Arborea (Sourwood, Sorrel-Tree): *Oxydendrum arboreum*

A. Plumata: ?

A. Spicata (Maleberry): *Lyonia ligustrina*

A. Latifolia (Bog Rosemary): *A. glaucophylla (A. g. latifolia)* Bartram must have encountered this plant on his trips to N. J. [1879]

A. Lanceolata: This might be *A. Polifolia* which Bartram could have found in New York

A. Nitida (Fetter Bush): *Lyonia lucida*

A. Globulifera: ?

A. Grassifolia: *Vacinium crassifolium*. This is a wild guess based only on the fact that even a *Vaccinium* species was once classified as *Andromeda*. This species found in N.C. to Ga. was known in cultivation in 1787 according to Rehder.

Lonicera Canadensis (Fly Honeysuckle): *L. canadensis*

L. Periclimenum (Woodbine): *L. Periclymenum*

L. Chamaecerasus (European Fly Honeysuckle): *L. Xylosteum*

L. Symphoricarpos (Snowberry): *Symphoricarpos albus*

Diarvilla Canadensis: *Diervilla Lonicera*

Lythrum (Loose-Strife): *Decodon verticillatus*

Xanthoxilum Virginianum (Prickly Ash, Toothache Tree): *Zanthoxylum americanum*

Glycine Frutescens (Wisteria): *Wisteria frutescens*

G. Apios (Ground Nut): *Apios tuberosa (americana)*

Oxyacantha Canadensis: *Berberis canadensis*. This puzzler was tracked down through Philip Miller. *Oxyacantha* and *Berberis* were one and the same.

Betula Papyrifera (Paper Birch): *B. papyrifera*

B. Lenta (Cherry Birch): *B. lenta*

B. Nigra (Black (Red) Birch): *B. nigra*

B. Nana: *B. nana* [1789]

B. Populifolia (Grey Birch): *B. populifolia*

Alnus Rubra, Betula (Smooth Alder): *A. rugosa*

A. Maritima (Seaside Alder): *A. maritima* [1878]

Acer Sachariflua (Sugar Maple): *A. saccharum*

A. Rubra (Red (Swamp) Maple): *A. rubrum*

A. Glauca (Silver Maple): *A. saccharinum*

A. Negundo (Box Elder): *A. Negundo*

A. Arbustiva: ?

A. Ornata: ?

Taxus Canadensis (Yew): *T. canadensis*

Mitchelia Repens (Partridge Berry): *Mitchella repens*

Aristolochia Frutescens (Dutchman's Pipe): *A. durior* [1783] or *A. tomentosa* [1799]

Tilia (American Linden): *T. americana*

Fraxinus Excelsior (European Ash): *F. excelsior*

F. Nigra (Black Ash): *F. nigra* [1800]

Quercus species are ever confusing. As Miller notes for *Q. Rubra* that it is the "scarlet oak from Virginia" and his description would apply to *Q. coccinea* and as Dr. J. M. Fogg, Jr. in his article in the Morris Arboretum Bulletin, December, 1967, Vol. 18, No. 4, discusses "Great Champain Red Oak. *Q. Rubra* as one growing in fields as opposed to other locations I am designating *Q. Campana* as the Red (Field) Oak and *Q. Rubra* as the Scarlet Oak.

Quercus Alba (White Oak): *Q. alba*

Q. Nigra (Water Oak): *Q. nigra*

Q. Rubra (Scarlet Oak): *Q. coccinea*

Q. Hispanica (Spanish Oak): *Q. falcata*

Q. Nana (Scrub Oak): *Q. ilicifolia* [1800]

Q. Phyllos (Willow Oak): *Q. Phellos*

Q. Deltoide: ?

Q. Folio Amplissima: ?

Q. Aegilops: *Q. macrolepis*

Q. Castanea (Yellow Chestnut Oak): *Q. Muhlenbergii* [1822]

Q. Dentata—This could be any one of our dentate oaks, *Q. bicolor* (Swamp White Oak), *Q. Prinus* (Basket Oak), *Q. montana* (Chestnut Oak) or *Q. prinoides*. *Prinus* I rule out as it was early introduced and named by Linnaeus. *Q. montana* was introduced in 1688 and was named "monticola" by Muhlenberg. *Q. prinoides* has been known as Chinquapin since very early times. This leads me to believe *Q. bicolor*, a less common oak supposedly introduced in 1800, is the one most likely to have been called Dentata by the Bartrams.

Q. Lobata: This is most likely Post Oak, *Q. obtusiloba (stellata)*

Q. Campana (Red Oak): *Q. borealis (rubra)*

Q. Flamula: ?

Q. Gallifera: As every oak has galls this could be anything.

Halesia Tetraptera (Silver Bell): *H. carolina* or *H. monticola*

Ptelea (Hop-Tree, Wafer Ash): *P. trifoliata*

Juglans included Carya. With the help of Miller's descriptions I have sorted this group as follows:

Juglans Nigra (Big Shellbark Hickory): *Carya laciniosa*. Miller described a tree with a large elongate nut which he called "black walnut."

J. Alba (Mockernut): *Carya tomentosa*

J. Hycory (Shagbark Hickory): *Carya ovata*

J. Cinerea (Butternut): *Juglans cinerea*

J. Odorifera (Black Walnut): *J. nigra*. Miller also called this black walnut but differentiated it from the above by special emphasis on the aroma of the juices when the leaves were crushed, which he said the former had none of.

Corylus Nucleorotundiori duriori (Hazel Nut): *C. americana* [1798]

C. Cornata (Beaked Hazel Nut): *C. cornuta*

Hamamelis (Witch Hazel): *Hamamelis virginiana*

Ceanothus Foliis Trinerviis (N. J. Tea): *C. americanus*

Celastrus Scandens (Bittersweet): *C. scandens*

Spirea Opulifolia (Ninebark): *Physocarpus opulifolius*

S. Foliis Ternatis (Bowman's Root): *Gillenia trifoliata*

Spirea Aruncus (Goat's Beard): *Aruncus dioicus*

Rhus Vernix (Poison Sumac): *R. Vernix*

R. Cervina: *R. typhina*

R. Lentici Folia (Shining Sumac): *R. copallina*

R. Glabra (Smooth Sumac): *R. glabra*

R. Canadensis (Fragrant Sumac): *R. aromatica*

R. Radicans (Poison Ivy): *R. radicans*

R. Triphyllon: ?

Robinia Pseudoacacia (Black Locust): *R. Pseudoacacia*

R. Villosa (Rose Acacia): *R. hispida*

Gleditsia Triacanthos (Honey Locust): *G. triacanthos*

Bignonia Catalpa (Southern Catalpa): *C. bignonioides*

B. Crucigera (Cross Vine): *B. capreolata*

B. Semper Virens (Carolina Yellow Jasmine): *Gelsemium sempervirens*

B. Radicans (Trumpet Vine): *Campsis radicans*

Nissa Tupelo (Cotton Gum): *Nyssa aquatica*

N. Ogeche (Ogeechee Lime): *N. Ogeche* [1806]

N. Sylvatica (Sour Gum): *N. sylvatica*
Aralia Spinosa (Hercules Club): *A. spinosa*
A. Nudicaulis (Wild Sarsparilla): *A. nudicaulis*
A. Racemosa (Spikenard): *A. racemosa*
Populus Deltoide (Cottonwood): *P. deltoides*
P. Foliis Cordatis: Darlington lists and describes this but observes that Dr. Pickering thinks it a young tree of the *P. Tremula*. It could be, however, *P. grandidentata*.
P. Tremula (Quaking Aspen): *P. tremuloides* [1812]
Myrica Gale (Sweet Gale): *M. Gale*
M. Caerifera (Wax Myrtle): *M. cerifera*
M. Angustifolia (Evergreen Bayberry) *M. heterophylla* [1903]. This, being the most narrow leaved one, seemed a plausible choice except for the date.
Platanus Occidentalis (Buttonwood): *P. occidentalis*
Grossularia Canadensis (Gooseberry): Knowing that Bartram collected a very delicious gooseberry in Pennsylvania I believe it safe to think this is *Ribes hirtellum*, which Rehder lists as being introduced 1812.
Fagus Sylvatica–American Beech: *F. grandifolia* (*sylvatica* in Darlington's book) [1800]
F. Castanea (American Chestnut): *Castanea dentata* [1800]
F. Castanea pumila (Chinquapin): *C. pumila*
Calicanthus (Carolina Allspice): *Calycanthus floridus*
Ilex Aquifolium (Holly): *I. opaca*
I. Yapon (Yaupon): *I. vomitoria*
I. Angustifolium: ?
I. Dahun (Dahoon): *I. Cassine*
Gultheria Procumbens (Teaberry, Wintergreen): *Gaultheria procumbens*
Epigea Procumbens (Arbutus, May Flower): *Epigaea repens*
Vitis Vinifera (Summer Grape): *V. aestivalis*. This would correspond to Marshall's *Vitis Vinifera Americana* as described by Darlington
V. Labrusca (Fox Grape): *V. Labrusca*
V. Vulpina (Frost Grape): *V. vulpina* [1806]
Smilax Aspera (Green Briar): *Smilax rotundifolia*
S. Annua (Carrion Flower): *S. herbacea*
Diospyros Guajacana (Persimmon): *D. virginiana*
Aesculus Octandra (Sweet Buckeye): *A. octandra*
A. Caroliniana (Buckeye): *A. Pavia*, probably
Dirca (Leatherwood): *D. palustris*
Clethera Alnifolia (Sweet Pepper Bush): *Clethra alnifolia*
Rubus Idaeus (Common Raspberry): *R. idaeus*
Morus Nigra (Black Mulberry): *M. nigra*
Anona Nuda (Pawpaw): *Asimina triloba*
Hypericon Kalmianum: *H. Kalmianum*
Cercis Siliquastrum (Judas Tree): probably our native *C. canadensis*
Olea Americana: *Osmanthus americanus*
Vitis Petroselenifolia (Virginia Creeper): *Parthenocissus quinquifolia*? This was once classed as *Vitis* and with some imagination one could think the leaf resembled that of parsley.
Celtis Occidentalis: Darlington calls this "Nettle Tree" and describes what we call, today, *C. pumila*. He lists *C. crassifolia (cordata)* as Hack Berry and describes this as a considerably larger tree (30′ to 50′ as against 8 to 15′). He further describes the fruit of the former as being orange when mature and that of the latter as black. So it would seem that what was once called *C. occidentalis* should now be called *C. pumila* and what was called *C. crassifolia* should now be called *C. occidentalis*. Assuming this reasoning to be correct *C. pumila* came into cultivation much earlier than 1876 as listed
Philadelphus (Mock Orange): *P. inodorus*
Altamaha (Franklinia): *Franklinia altamaha*
Gardenia (Cape Jasmine): *G. jasminoides*

DISPLAY OF AUTUMN FRUITS

On the occasion of the 24th American Horticultural Congress, which was held at the Benjamin Franklin Hotel in Philadelphia, September 16 to 20, the Arboretum mounted a display of autumn fruits.

This exhibit, which was assembled by Mrs. Thomas H. Atherton and Mrs. E. Perot Walker, contained more than 90 species and varieties of brightly colored or otherwise interesting fruits collected in the Arboretum.

The genus with the largest representation was *Viburnum* with nine species. The crab-apples *(Malus)* were next with seven species while *Ilex* and *Cotoneaster* each had six. There were five hawthorns *(Crataegus)*, four roses and an equal number of species of *Sorbus*.

One of the plants which attracted much attention in the show was the yellow-fruited dogwood *(Cornus florida xanthocarpa)*. Another was *Clerodendron trichotomum*, with its bluish fruits in marked contrast to the crimson calyx. *Idesia polycarpa*, with its large panicles of orange-red berries, was greatly admired as was *Stranvaesia Davidiana* with its many clusters of bright red fruits.

Although not spectacular, the brownish pomes of the medlar *(Mespilus germanica)* elicited much comment, for apparently this species is not too frequently seen in cultivation in this country. Another interesting subject was the yellow-horn *(Xanthoceras sorbifolium)* with its large, dark green, leathery capsules.

Among other genera represented were *Rhodotypus, Callicarpa, Photinia, Phellodendron, Xanthoxylum* and *Euonymus*.

CARPINUS AT THE BARNES ARBORETUM

John M. Fogg, Jr.

The genus *Carpinus* includes some 30 species of deciduous small- to medium-sized trees known in English-speaking countries by the common names of ironwood or hornbeam. It is a member of the Corylaceae, or Hazel-nut Family, (formerly regarded as the Betulaceae, or Birch Family). Most members of the genus are native to eastern Asia, but a few are represented in eastern and central North America and in Europe.

The bark is usually smooth and tight, although occasionally it is rough and scaly. The leaves are alternate, simple, pinnately veined and generally sharply and doubly serrate. The wood, although extremely hard and fine-grained, is of little commercial value.

Male and female flowers are borne in pendulous catkins (aments) and occur on the same plant. The imbricate bud scales are often attractively colored when the plants are in flower.

The female catkin is composed of a series of overlapping toothed or lobed bracts and at the base of each bract are two small flowers.

The fruit is a ribbed, ovoid nutlet, attached to the base of the bract, which develops into a leaf-like structure. The shape, size and degree of toothing or lobing of the mature bracts provide useful diagnostic characters in the recognition of the several species. (Fig. 7).

In Rehder's "Manual of Cultivated Trees and Shrubs" (Ed. 2, 1940) eight species of *Carpinus* are treated as being common in cultivation in our area. Since six of these, plus one variety, are being grown in the Barnes Arboretum it seems worthwhile to record our observations concerning their origin, their characteristics and their suitability for cultivation in this section of eastern temperate North America.

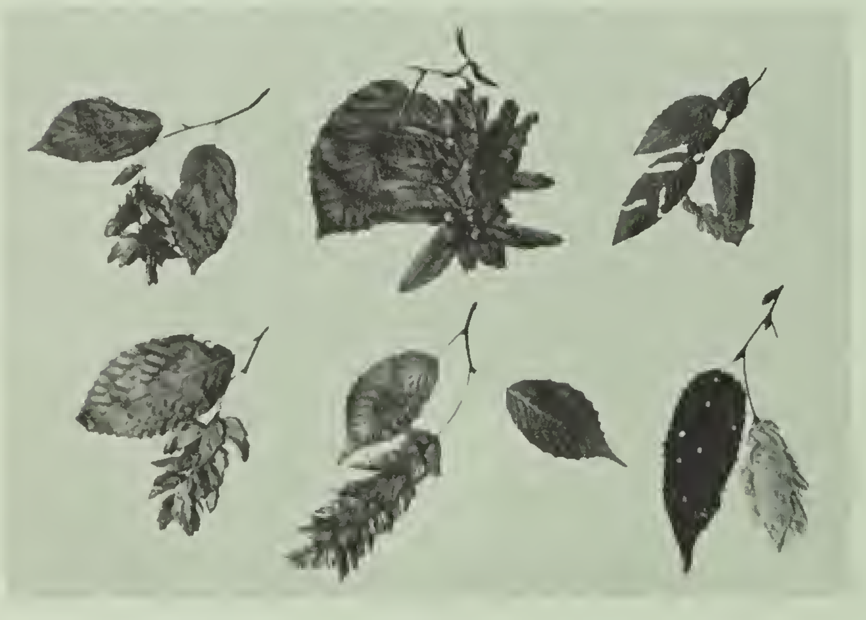


Fig. 7. Six species of *Carpinus*
above, l to r: *caroliniana, Betulus, orientalis*
below, l to 4: *Tschonoskii, Turczaninovii, japonica*

Although spectacular neither in flower or fruit, the hornbeams are worthy of consideration because of their rapid growth, attractive bark and usually lustrous green foliage. The fruiting catkins of several species are distinctly interesting in appearance.

There follows a brief description of the representatives of this genus currently cultivated in the Arboretum of The Barnes Foundation, followed by keys which may enable the student to recognize them.

C. caroliniana Walt. American hornbeam, ironwood, blue beech. Nova Scotia to Minnesota, south to Florida and Texas, reappearing on the mountains of Mexico and Central America. This species is a small tree, seldom exceeding 12m. (40 feet) in height. The bark is smooth, tight and gray or blue gray (leading to one of its common names, viz., blue beech) and often somewhat fluted or "muscular." The leaves which are 2.5-8cm. (1-4 inches) long, have sharply doubly serrate margins and 7 to 12 pairs of prominent lateral veins. The fruiting bracts are 5-7-nerved, with short lateral lobes and either entire or with 1-5 sharp teeth. The fine-grained wood is said to be used for levers, the handles of tools and other small articles.

There are three specimens of this species in the Arboretum. The largest, a tree about 10m. (35 feet) tall, is directly north of the Gallery. Another, smaller plant is growing close to the Magnolia collection along Latches Lane. The third is a slender tree, about 5m. (16 feet) tall, on the margin of a naturally wooded area in the southwestern corner of the grounds; it is probably part of the original deciduous woods, of which about two acres remain.

According to our records one of the first two specimens was brought from Ker Feal, the Barnes country estate near Chester Springs in Chester County, Pa. This may likewise have been the origin of the second plant, although it is also possible that it was moved from the wooded area at the western end of the Arboretum.

C. Betulus L. European hornbeam. Central and southern Europe to Iran. This is one of the tallest species in the genus, often attaining heights of 20m. (65-70 feet). However, it is frequently pruned and treated as a hedge, especially in western Europe and the British Isles. Unlike most other species of the genus, the bark is usually roughened, rather than tight and smooth. The ovate leaves are cordate at the base, acuminate at the apex, with 7-15 pairs of veins and a rather thicker texture than most of the other species. The fruiting catkins are the longest (7-14cm) of any of our hornbeams and the lobed fruiting bracts are entire or remotely toothed on both margins.

The large specimen northeast of the Gallery was purchased from the Kohankie Nursery in 1950. It is now a handsome spreading tree nearly 12m. (40 feet) tall with slightly scaly bark and dark lustrous green foliage.

The Arboretum also has a plant of the variety *fastigiata* Jaeg., which was obtained from a local nursery in 1956. Although growing in a crowded and shaded situation northwest of the Gallery, it is a remarkably well formed pyramidal tree, about 25 feet tall, with ascending branches. In our specimen the leaves are broadly rounded at the base instead of cordate as in typical *C. Betulus.*

C. orientalis Mull. Southeastern Europe, Asia Minor. A shrub or small tree to 5m. (16-18 feet) with tight gray or brownish bark. The ovate or elliptic leaves are rounded at the base and acute at the apex. The ovate bracts of the fruiting catkins are serrate along both margins.

The plant in the Arboretum was obtained from the Morris Arboretum in 1954. It is now a symmetrical shrubby tree about 5m. (16 feet) tall with light gray bark striped with brownish lines. The leaves are the smallest of any of our species and although possessing 11-14 pairs of veins are seldom more than 5 cm. (2 inches) in length. To date this plant has produced very little fruit.

C. Tschonoskii Maxim. Japan, Korea, China. A tree to 15m. (50 feet) with spreading branches tight bark and doubly or finely serrate leaves which have 12-15 pairs of veins. The ovate fruiting bracts are serrate only on one side and have a small lobe at the base of the entire side.

The Arboretum's specimen, which was obtained in 1941, is now a well-rounded tree about 10m. (35 feet) tall. The bark of the main trunk and lower limbs exhibits an anastomosing pattern of light and dark gray lines. It is an abundant fruiter.

C. Turczaninovii Hance. Japan, Korea, China. A tree 8-10m (about 30 feet) with tight, gray fluted bark. The leaves which are sharply doubly serrate have 10-12 pairs of veins and are long tapering at the apex. During early April, when the plant is in flower, the bud scales are a bright cherry red. The fruiting catkins are long and slender and the mature bracts are serrate along one margin with 1 to 3 small teeth on the other.

Our specimen was obtained under the name of *C. japonica* from an Ohio nursery in 1941. Its smaller, fewer-veined leaves showed clearly that it did not belong to that species and as soon as it was old enough to produce fruit it was possible to identify it as *C. Turczaninovii.* It has suffered winter injury and has been topped at least once. Today it is about 6m (20 feet) tall, is making fine vigorous growth and fruits abundantly.

C. japonica Bl. Japan. A tree to 15m. (50 feet) with rough scaly bark. The leaves differ from all of our species in having 15-24 pairs of veins. The fruiting catkins are also remarkable in that their numerous dentate, overlapping bracts make them resemble rather the catkins of a hop hornbeam *(Ostrya)* than those of a *Carpinus.*

As already mentioned, the plant which the Arboretum acquired under this name in 1941 proved to be *C. Turczaninovii.* We have recently acquired a valid specimen from the Kingsville Nurseries, Md. Although as of this writing it is a mere 2m. (7 feet) tall, it has already started to produce flowers and fruits. Its performance must await future comments in these Newsletters.

In 1927 the late Mrs. Barnes obtained a specimen of *C. laxiflora* Bl. from the Arnold Arboretum. This species, which is a native of western and central China, was almost certainly sent to her by E. H. Wilson, the famous explorer who visited this Arboretum on several occasions. Unfortunately, it has not survived, but efforts are being undertaken to replace it to this collection.

Key based on Vegetative Characters

1. Leaves with 7-15 pairs of veins
    2. Leaves 5-15 cm. long
        3. Branchlets essentially glabrous
            4. Leaves usually rounded at base; buds 3-4 mm. long .... *C. caroliniana*
            4. Leaves usually cordate at base; buds 4-12 mm. long .... *C. Betulus*
        3. Branchlets densely hairy .... *C. Tschonoskii*
    2. Leaves 4-6 cm. long
        5. Leaves rounded at base, acute at apex, lustrous above .... *C. orientalis*
        5. Leaves cordate at base, long tapering at apex, scarcely lustrous above .... *C. Turczaninovii*
1. Leaves with 15-24 pairs of veins .... *C. japonica*

Key based on Fruiting Characters

1. Mature bracts 3-5 cm. long .... *C. Betulus*
1. Mature bracts 1.5-3 cm. long
    2. Bracts with lobes on one or both sides
        3. Bracts with lobes on both sides .... *C. caroliniana*
        3. Bracts with a small lobe on one side only *C. Tschonoskii*
    2. Bracts serrate or toothed but without lobes
        4. Bracts not closely appressed but spreading
            5. Bracts serrate on both sides .... *C. orientalis*
            5. Bracts serrate on one side only *C. Turczaninovii*
        4. Bracts closely appressed and overlapping *C. japonica*

GOURMET DELECTABLES

Eloise W. Atherton

We recently had our first visit to "The Islands" on Nevis, that little gem which rises 3600 feet out of the blue Caribbean into a crown of clouds.

We were fortunate in that our hostess was interested in the fruits and vegetables grown on the island, so we sampled many new and strange dishes, including the following:

Sapodilla. *Achras Sapota* (Sapotaceae). The fruit is an apple-shaped berry, russet and scurfy outside (like a dirty tennis ball). The sweet flesh is delicious, tasting like a cross between a pear and a fig.

Two species of *Annona* (Annonaceae).
Custard-apple, cherimoya. *A. cherimola.* This resembles an over-size apple with flesh like cooked custard. It is eaten with a spoon.

Sour-sop. *A. muricata.* This is peeled and the flesh is put through a sieve, making a thick liquid. By adding sugar and milk it may be frozen for a delicious ice cream. With the addition of water it makes a tart drink.

Mammee-apple. *Mammea americana.* (Guttiferae). The fruit is a nearly round drupe with a thick russet skin; peeled and cooked, it is like apple sauce with an apricot flavor.

Yam. *Dioscorea Batatas.* (Dioscoreaceae). This is the true yam, not the sweet potato with which it is sometimes confused. The roots, which assume grotesque shapes, contain a rather hard pulp; they are parboiled, mashed and seasoned with herbs.

Plantain. *Musa paradisica* (Musaceae). This resembles the banana (var. *sapientum*), but is always cooked. The fruit may be sliced thin and fried like potato chips. When ripe it may be used like bananas in fritters or it may be fried in butter and used as a vegetable.

Breadfruit. *Artocarpus communis* (Moraceae). The fruit may be peeled, sliced and fried for a vegetable or, since it remains firm and crisp, it makes an excellent "potato salad."

Aubergine. *Solanum Melongena* (Solanaceae). This is a small egg-plant, about two inches long, which may be fried or, combined with tomatoes, onions, etc., used as a vegetable.

Christophine, Chayote. *Sechium edule* (Cucurbitaceae). This resembles an over-size green one-seeded pepper. A single plant may yield from 50 to 100 fruits in a growing season. The fruit may be used in salads (similar to water chestnuts) or boiled and prepared in various ways.

Pumpkin. *Cucumis* sp. (Cucurbitaceae). This name is given to a large fruit with the shape and flesh of a pumpkin, but with green and white stripes. It is used as a soup, or in fritters or, sweetened, as a desert.

Pigeon-pea. *Cajanus Cajan* (Leguminosae). These resemble black-eyed peas, but taste like lentils. Pigeon-pea and rice are the staple foods of the natives.

Tamarind. *Tamarindus indica* (Leguminosae). When ripe the seeds resemble large lima beans embedded in a sticky flesh with an apricot flavor. Children are fond of dipping the seeds in sugar and sucking them.

Tanier. *Xanthosoma sagittaefolia* (Araceae). The rhizomes when ground into a flour make excellent fritters.
Brown sugar, "Nusovado sugar". *Saccharum officinarum* (Gramineae). This granulated but unrefined sugar makes a fine syrup for hot-cakes.

Passion-flower. *Passiflora quadrangularis* (Passifloraceae). The fruit is a yellow berry with a hard center and a thick seedy pulp. When strained it produces a fragrant, sweet orange liquid which is used for drinks.

Sorrel, roselle. *Hibiscus Sabdariffa* (Malvaceae). The immature flowers are soaked in water which is decanted and used like cranberry juice. It keeps indefinitely at room temperature and may be sweetened to taste.

In addition to these plant products we greatly enjoyed sea turtles, both in the form of steaks and soup, as well as conch, ground raw for a chowder.

NOTES FROM THE ARBORETUM

THE STAFF

On November 13 Dr. Gordon gave the two final lectures for an ecology workshop at the Schuylkill Valley Nature Center in Philadelphia. Two groups of adults were present, in charge of Robert Garner, Staff Naturalist, and Richard L. James, executive Director of the Center. The Valley Forge Audubon Society held a morning field trip in Longwood Gardens on Saturday, December 3, with Dr. Gordon as leader.

The Ohio Biological Survey has just announced publication of Bulletin N. S. Vol. III, No. 2, with xii plus 113 pages entitled "The Natural Vegetation of Ohio in Pioneer Days." Financed largely by a grant from the National Science Foundation and begun during the summer of 1964, the project included a vegetation map, the text, and original illustrations prepared by Dr. Gordon, of the Arboretum teaching staff. Inquiries should be directed to the Survey office, 244 Lord Hall, 124 West 17th Avenue, Columbus, Ohio 43210.

Mr. Tyrrell spoke at the October meeting of the Delaware Rose Society at Newark, Delaware. His topic was, "Some Gardens of England."

Dr. Zirkle has contributed an article on "Plant Genetics and Cytology" to a book entitled, "A Short History of Botany in the United States." This volume, edited by Professor Joseph Ewan, was published by Hafner Company with the support of the Longwood Foundation.

On October 1 Dr. Fogg, gave an illustrated lecture entitled, "New or Unusual Trees and Shrubs" to the Men's Garden Club of Delaware Valley and on October 13 he gave a talk on "Spain and Portugal" to the Penn Valley Garden Club. At the annual meeting of the Philadelphia Botanical Club, held at the Academy of Natural Sciences on December 18, Dr. Fogg spoke on the topic "A Botanist in Japan and Taiwan."

AN EXPERIMENT IN WINTER-HARDINESS

One of the most important functions an arboretum can perform is to test plants for hardiness and to make available the information thus obtained. Although the term hardiness is subject to various interpretations, it is here employed to designate resistance to extremely low winter temperatures.

In general, it is not considered sound arboretum practice to enclose plants in burlap, straw, or some other material. To do so would be to defeat an important objective, which is to ascertain the behavior of plants when subjected to prolonged periods of sub-freezing temperatures. In other words, an arboretum should be in a position to speak with authority concerning the winter-hardiness of a wide variety of plant materials cultivated in its region.

Although artificial means of protection are seldom employed in arboreta, it is highly desirable that plants be established in situations which provide them with the optimum conditions for survival. This varies with different species. For some it may require the avoidance of frost pockets. For others it may dictate a south-facing slope. For still others it may mean protection against northerly winds. Each plant, therefore, needs individual study and it may take years of experimenting with a variety of sites before the correct one is found.

We have recently initiated here a very small-scale project to determine the winter-hardiness of a few shrubs. Most of them are designated in Rehder's "Manual of Cultivated Trees and Shrubs." (edition 2, 1940) as being adapted to Zone VII, a zone which passes well to the south of Philadelphia and includes many species which are at home in Virginia and North Carolina. It will therefore be a matter of considerable interest to us, and to those who look to us for information concerning the adaptability of these plants to the Philadelphia area, to observe these specimens over a period of several years and to report on their behavior in future issues of this NEWSLETTER.

The following species (arranged in systematic sequence) have been selected for this experiment. They have been located in a sheltered east-facing position at the base of an arbor-vitae hedge, just north of the greenhouses along Lapsley Road.

Decaisnea Fargesii. (Lardizabalaceae). Unlike the related *Akebia,* which is a vine with palmately compound leaves, *Decaisnea* is an upright shrub with stout stems and large pinnately compound foliage. The flowers are inconspicuous but the fruit is a large, blue, fleshy follicle with the seeds embedded in a white pulp. The genus contains two species, both native to Southern Asia.

Lindera umbellata var. *hypoglauca.* (Lauraceae). This Asiatic relative of our eastern American spice-bush is a sturdy shrub with small yellow flowers and blackish drupes. Our plant was a gift from Mr. Lewis Lipp, Horticulturist at the Holden Arboretum in Mentor, Ohio.

Zanthoxylum alatum var *planispinum.* (Rutaceae). A deciduous shrub from southeastern Asia with pinnately compound leaves and conspicuous prickles with broad, flattened bases. As in our native toothache-tree *(Z. americanum),* the lustrous black seeds are in marked contrast to the reddish fruits.

Camellia (Thea) sinensis. Theaceae. This, the tea of commerce, is believed to have originated in Assam, but has been cultivated in China and elsewhere for centuries. It is an evergreen shrub with handsome white flowers which open in September and continue to bloom until frost. Rehder assigns it to Zone VII (page 902) but our plant was propagated from a specimen which has flourished for several years at the Morris Arboretum, just a few miles from here.

Cistus laurifolius and *C. villosus.* (Cistaceae). The rock-roses are among the most attractive small shrubs of the Mediterranean regions. Unfortunately, they are doubtfully hardy in our area. *C. laurifolius* has purple flowers, 2-3 inches across, while in *C. villosus* the petals are deep rose-colored with a yellowish base. Both of these plants were donated by Mr. William S. Patten of Downingtown, Penna.

Daphne Genkwa (Thymelaeaceae). A deciduous shrub from China and Korea with lilac-colored flowers. With us this species has proved less hardy than other members of the genus, such as *D. Mezereum* and *D. odora.* It is hoped that in a more favorable location it may prove successful.

Pieris (Ampelothamnus) phillyreifolia (Ericaceae). In its native habitats from Florida to Georgia and Alabama this evergreen species is often a vine, growing beneath the outer bark of pond cypress (*Taxodium ascendens*) and sending out leafy stems at intervals (See Wood, Journal Arnold Arboretum XLII: 52. 1961). It may also occur as a shrub about 3 feet tall. The flowers are similar to those of the more familiar *P. floribunda.*

Jasminum fruticans (Oleaceae). This evergreen or semi-evergreen shrub is native to Southern Europe, western Asia and north Africa. It differs from the more widely grown *J. nudiflorum* in having alternate, pinnate or pinnatifid leaves and by flowering in mid-summer, rather than late winter or early spring. Rehder assigns it to Zone VII.

Leptodermis oblonga (Rubiaceae). A low deciduous shrub from northern China with narrow leaves and slender violet purple flowers which appear in late summer or early autumn.

SOME ADDITIONAL VINES

Number 3 of this NEWSLETTER (September 1969) carried a brief statement of our efforts to assemble a representative series of vines at the Arboretum. After reading this account, our good friend, Mr. Brian O. Mulligan, Director of the University of Washington Arboretum at Seattle, generously sent us the following species as additions to our collection:

Schizophragma hydrangeoides (Saxifragaceae). A sturdy deciduous climber from Japan with large, orbicular, coarsely dentate leaves. The inflorescence is a terminal corymb with perfect flowers at the center and sterile marginal florets consisting of a single large white sepal.

Pileostegia viburnoides (Saxifragaceae). A native of China. This is an evergreen vine or scandent shrub climbing by rootlets. The opposite, lanceolate leaves are dark green and glossy above, somewhat lighter beneath. The small whitish flowers are borne in corymbose panicles and the fruit is a turbinate capsule.

Vitis Coignetiae (Vitaceae). A Japanese grape with broadly cordate, indistinctly lobed leaves which are nearly glabrous above and rusty tomentose beneath. The purple-black fruit are said to be inedible.

Ampelopsis arborea (Vitaceae). Known as pepper-vine, this slender climber is a native of our southeastern states and Mexico. The leaves are bipinnate with rhombic or obovate leaflets. The flowers, which are borne in loose cymes, give rise to attractive dark purple berries.

Actinidia x *Fairchildii* (Actinidiaceae). A cross between *A. chinensis* and *A. arguta.* Mr. Mulligan informs us that this plant came from Mr. J. H. Clark (formerly Editor of the Bulletin of the American Rhododendron Society) who in turn had obtained it from the U.S.D.A. Experiment Station at Chico, California. This hybrid may be doubtfully hardy here, but since both of its parents are growing well for us we have hopes that it, too, will succeed.

THE LAURA L. BARNES LECTURE

On November 12, 1969, the seventh in the series of Laura L. Barnes Lectures was given in the Parish House Auditorium of St. Thomas' Church in Whitemarsh, Pennsylvania.

The speaker was Dr. Richard E. Schultes, Director of the Botanical Museum of Harvard University, who presented an illustrated lecture on "Hallucinogenic Plants of the New World." Dr. Schultes, a recognized authority on drug plants, has lived among primitive peoples in South America and speaks from first-hand knowledge of this fascinating topic.

This lectureship has been made possible through the generous contributions of present and former students of the Arboretum School who have wished to express their appreciation of the significant contributions to botany and horticulture made by the late Dr. Laura L. Barnes.

Previous lecturers in this series have been Professor John S. L. Gilmour, Dr. Richard A. Howard, Dr. H. Christian Friedrich, Dr. Walter H. Hodge, Dr. Frans A. Stafleu and Dr. William C. Steere.